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Preparation App For All Exams

CI RCLE

Part-II

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Agenda :- Circles Part 2

Practice Question

24 Question

* $\underline{AB}$ $\overset{\frown}{AB}$ $\underline{\theta}$

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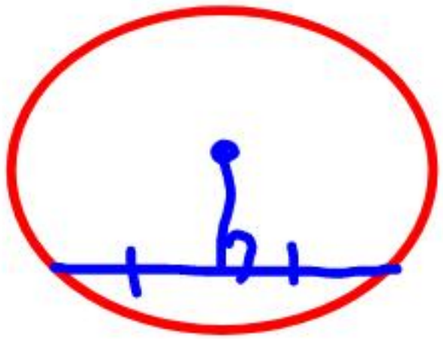

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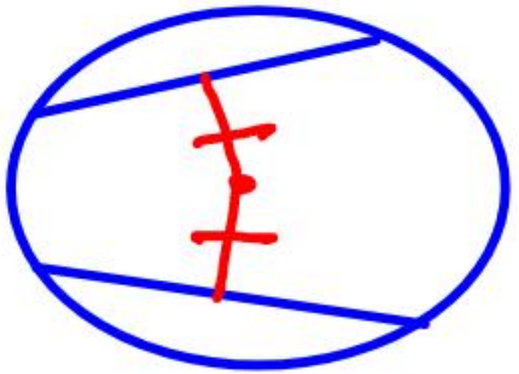

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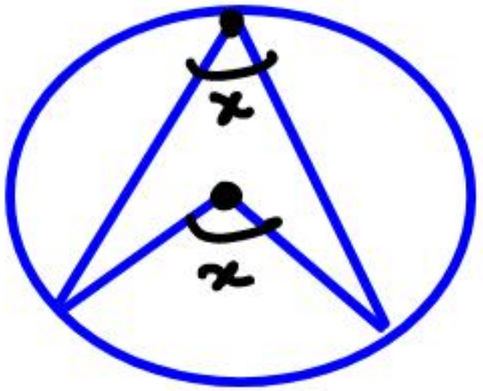
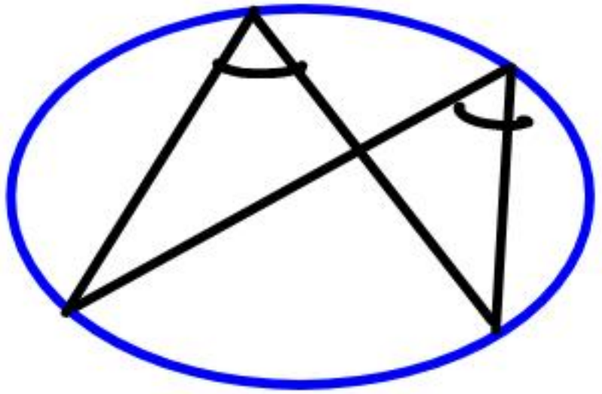
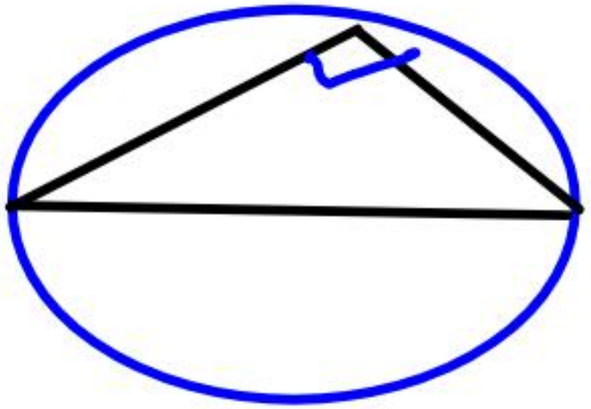
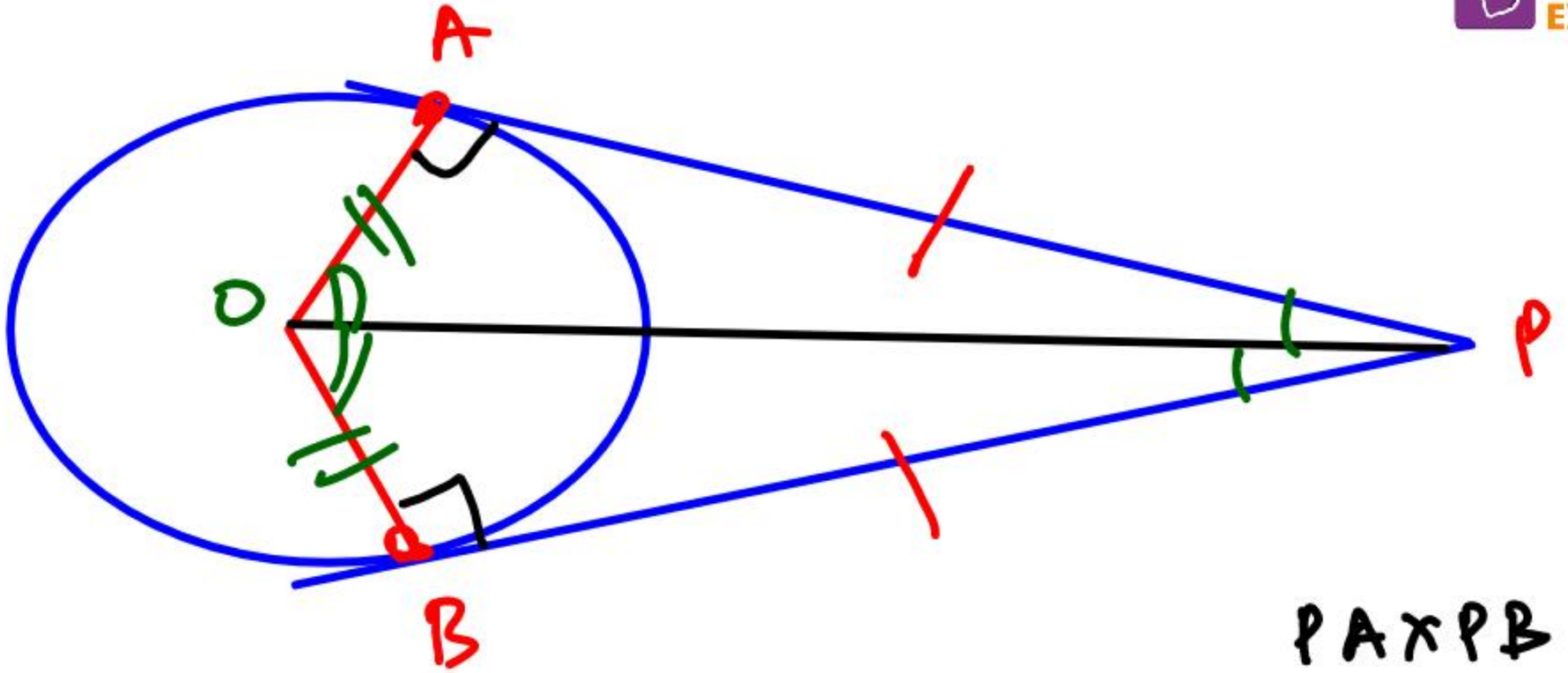
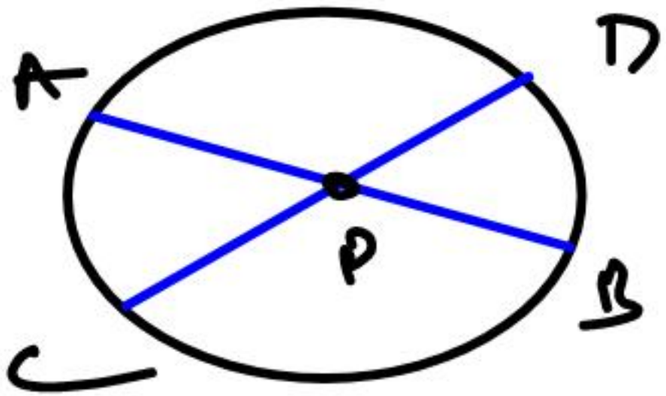


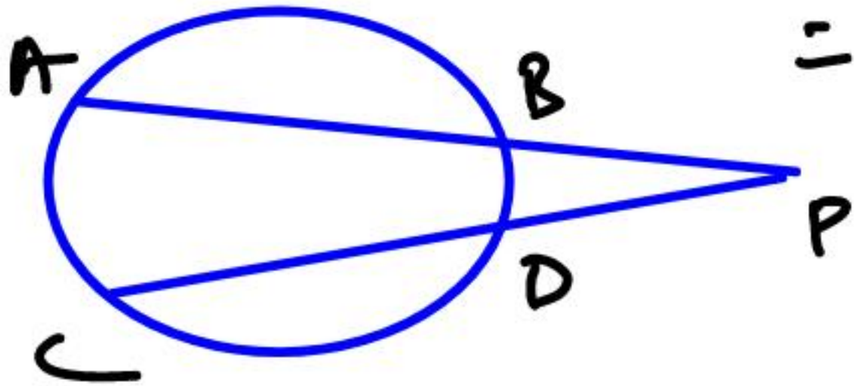


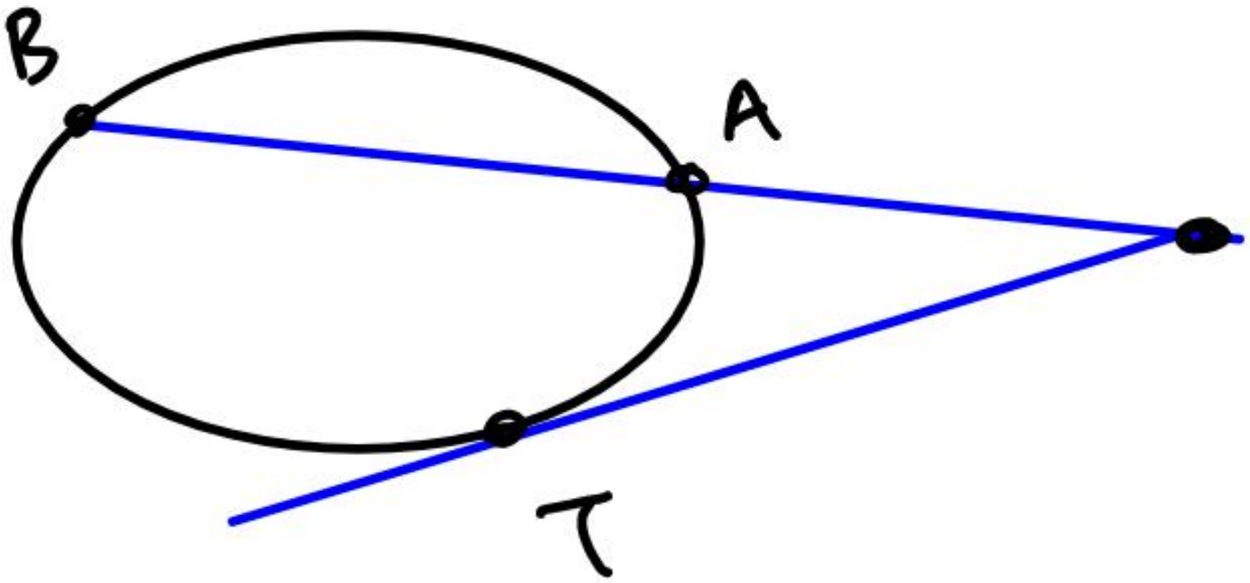




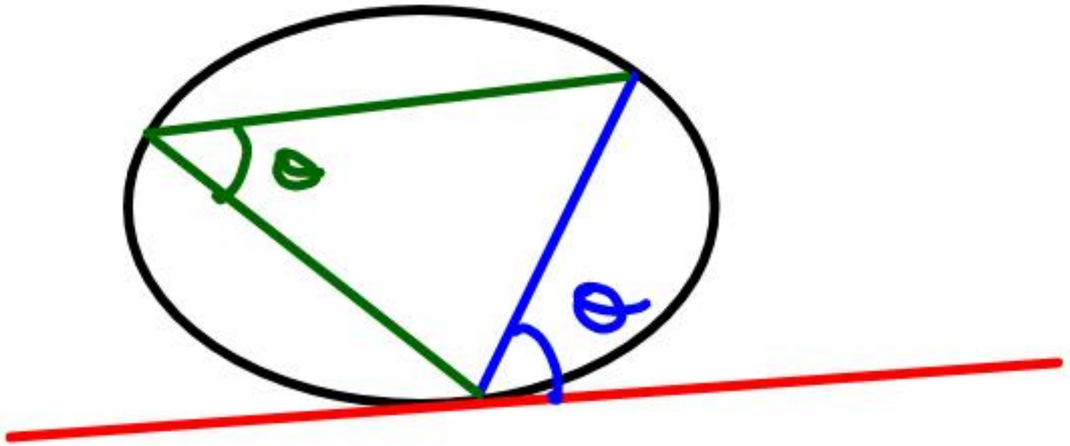
PA x PB
= PC x PD



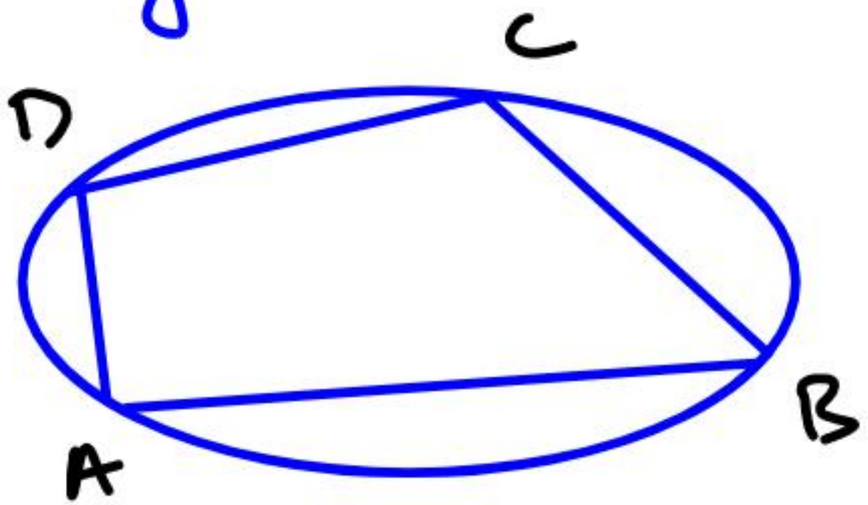




$PA \times PB = PT^2$



Cyclic Quad



$$\angle A + \angle C = \angle B + \angle D$$

$$= 180^\circ$$

$$AC \times BD = AB \times CD + BC \times AD$$

$$\sqrt{(s-a)(s-b)(s-c)(s-d)}$$

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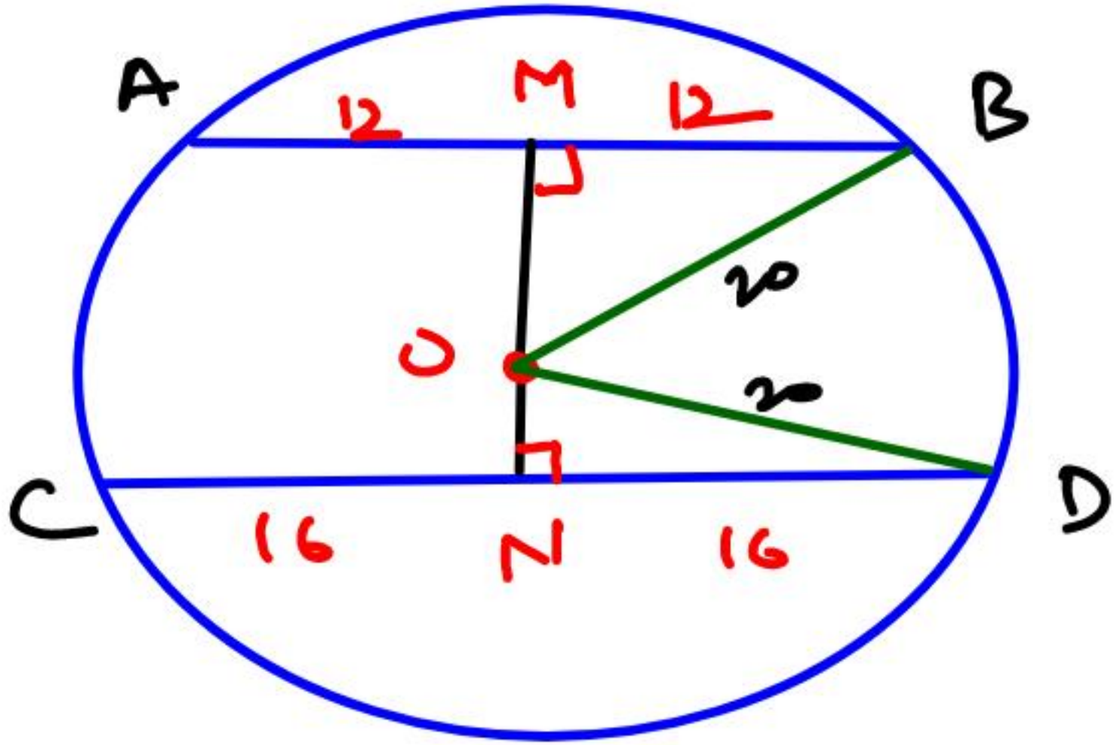
Practice Questions

Q1. Find the distance between 2 parallel chords of length 24 cm and 32 cm. If both the chords lie on opposite side of centre and radius of circle is 20 cm.



OM = 16 cm

ON = 12 cm

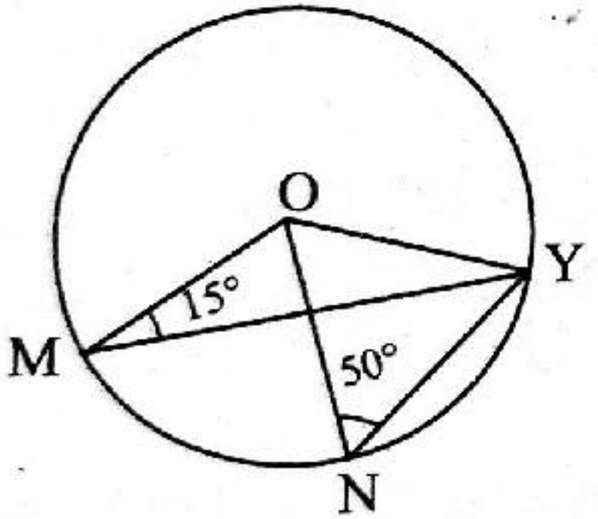
MN = 28 cm

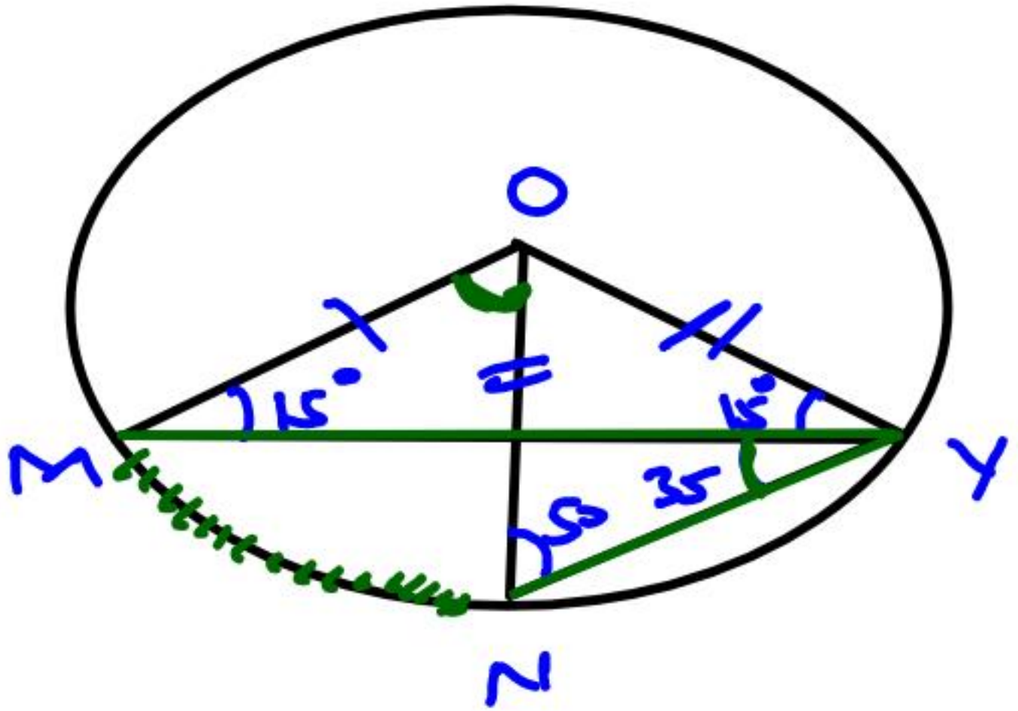
Ans. 28 cm

Q2. In the given figure, $\angle ONY = 50°$ and $\angle OMY = 15°$, then the value of the $\angle MON$ is:

(a) 30° (b) 40°

(c) 20° (d) 70°





Ans. (d)

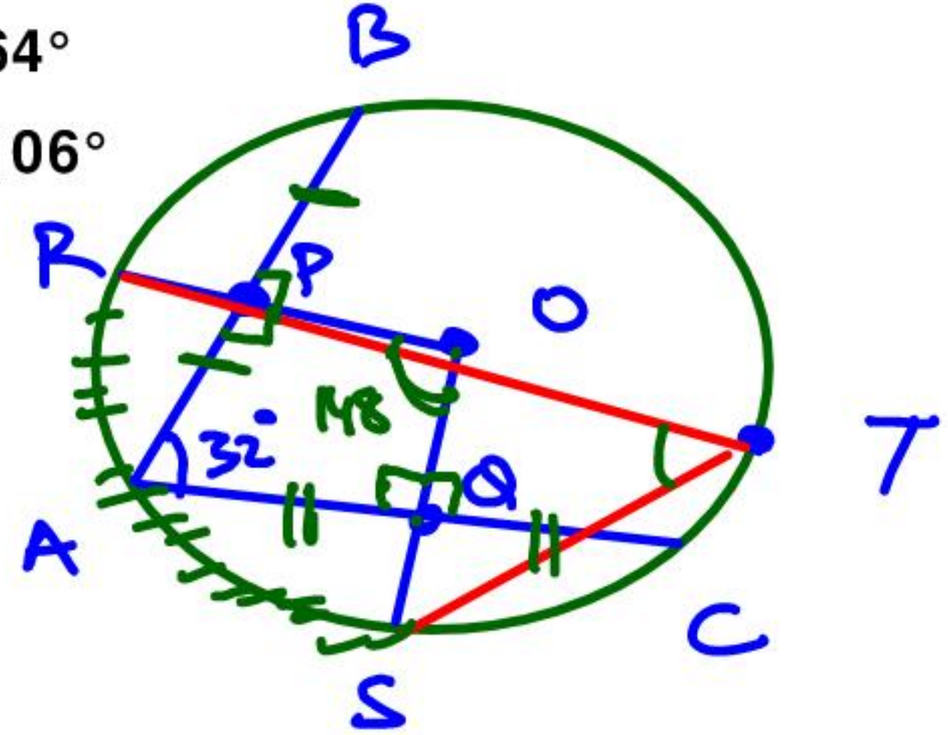
Q3. P and Q are the mid-points of two chords (not diameters) AB and AC, respectively of the circle with centre at a point O. The line OP and OQ are produced to meet the circle, respectively, at the points R and S. T is any point on the major arc between the points R and S of the circle. If $\angle BAC = 32°$, $\angle RTS = ?$

(a) 32°

(b) 64°

(c) 74°

(d) 106°



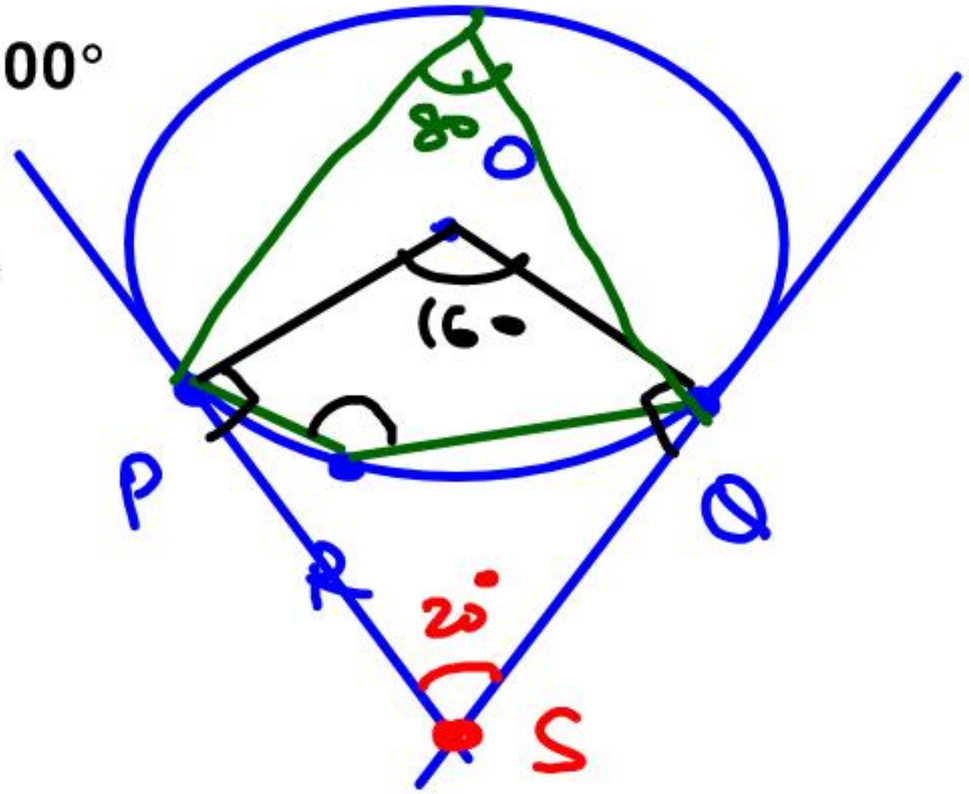
Ans. (c)

Q4. P and Q are two points on a circle with centre at O. R is a point on the minor arc at the circle between the points P and Q. The tangents to the circle at the points P and Q meet each other at the point S. If $\angle PSQ = 20°$, then $\angle PRQ = ?$

(a) 80°
(b) 200°
(c) 160°
(d) 100°

$90 + 20 + 90 + \angle POQ = 360$

$\angle POQ = 160$

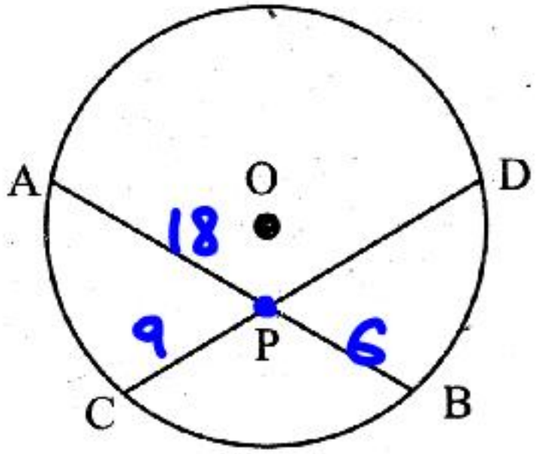


Ans. (d)

Q5. In the given figure, two chords AB and CD intersects at point P and O is the centre of the circle. If AP = 3 PB, AB = 24 cm and CP = 9 cm, then CD is

(a) 10 cm (b) 12 cm

(c) 15 cm (d) 21 cm



$PA \times PB = PC \times PD$

$18^2 - 6 = x \cdot PD$

$PD = 12$

$CD = PD + PC = 21$ cm

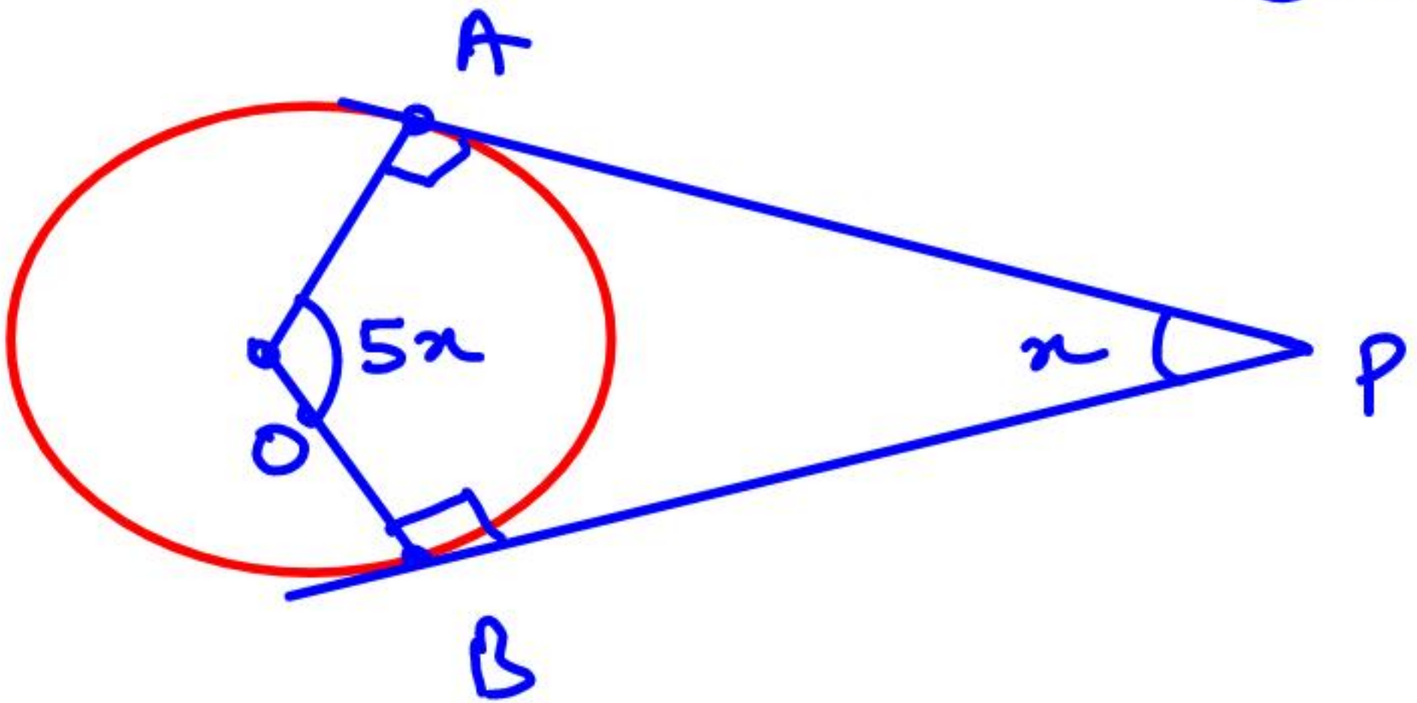
Ans. (d)

Q6. The tangents at two points A and B on the circle with the centre O intersects at P. If in quadrilateral PAOB, $\angle AOB : \angle APB = 5 : 1$, the measure of $\angle APB$ is:

(a) 30°
(b) 15°
(c) 45°
(d) 60°

$6x + 180 = 360$

$x = 30°$



Ans. (a)

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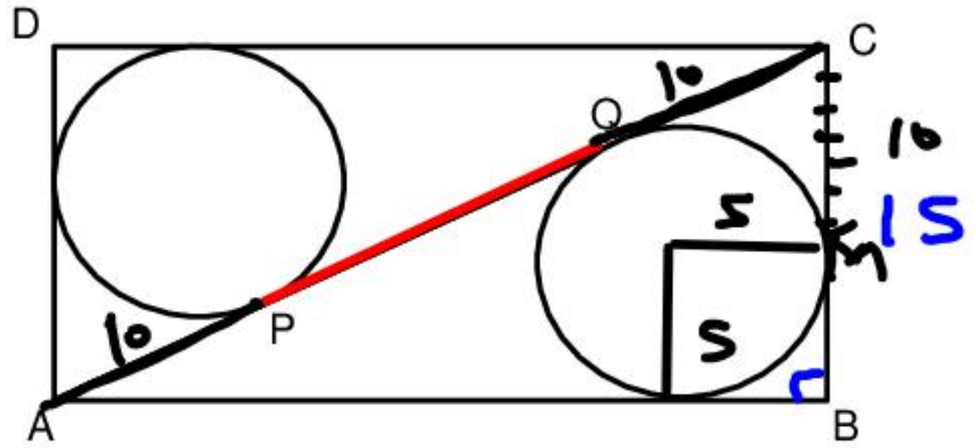
Q7. ABCD is a rectangle.

BC = 15 cm, AB = 20 cm

Find PQ.



* AC = 25

$$r = \frac{b+p-h}{2} = \frac{20+15-25}{2} \longrightarrow 5\text{ cm}$$

$$PQ = 25 - 20$$

$$= 5\text{ cm}$$

Ans. 5 cm

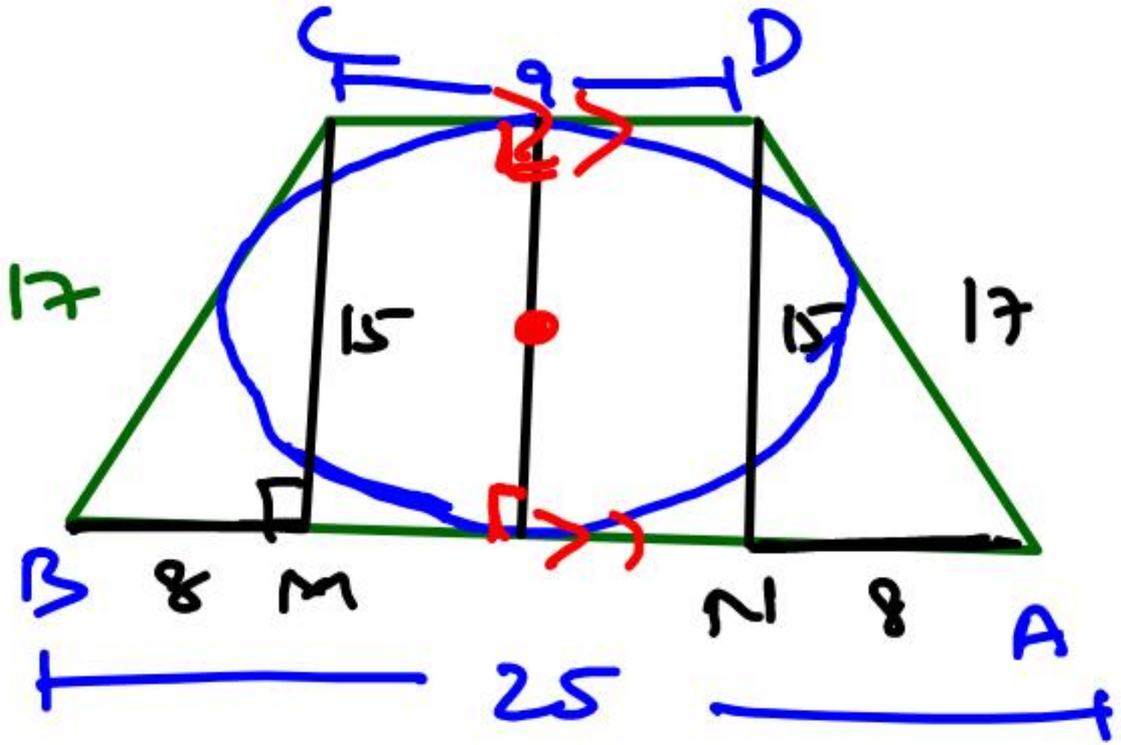
Shortcut: $PQ = l - b$

where, l = length of rectangle

b = breadth of rectangle

Q8. ABCD is an isosceles trapezium with parallel sides AB = 25 cm and CD = 9 cm. A circle is inscribed in ABCD. Find diameter of inscribed circle.

Ans



$BC = AD$

$34 = 2BC$

$BC = 17$

Diameter = 15cm

Ans. 15 cm

Shortcut:

Diameter = $\sqrt{ab}$

where, a and b are parallel sides of isosceles trapezium.

$\sqrt{25 \cdot 9}$

$= 15$ cm

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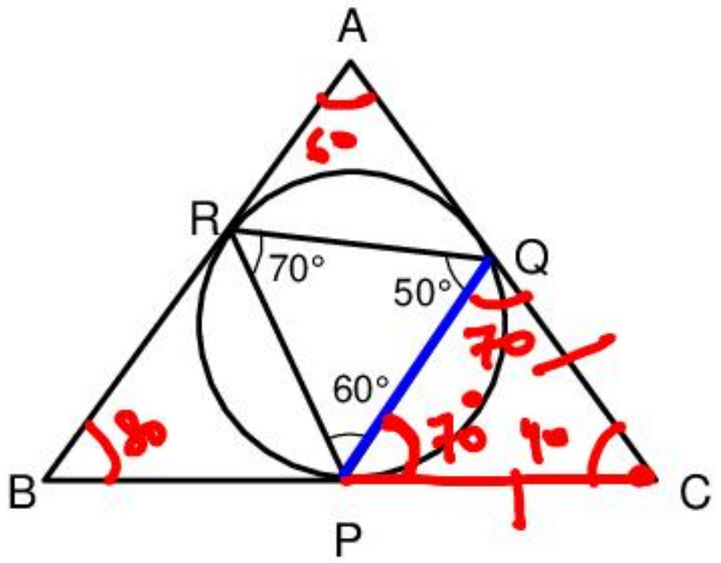
Q9. Find ∠A, ∠B and ∠C.



$\angle A = 60^\circ$

$\angle B = 80^\circ$

$\angle C = 40^\circ$

Ans. $\angle A = 60°$

$\angle B = 80°$

$\angle C = 40°$

Q10. P and Q are two points on a circle with centre at O. R is a point on the minor arc of the circle, between the points P and Q. The tangents to the circle at the points. P and Q meet each other at the point S. If $\angle PSQ = 20°$, then $\angle PRQ = ?$

(a) 80°

(b) 200°

(c) 160°

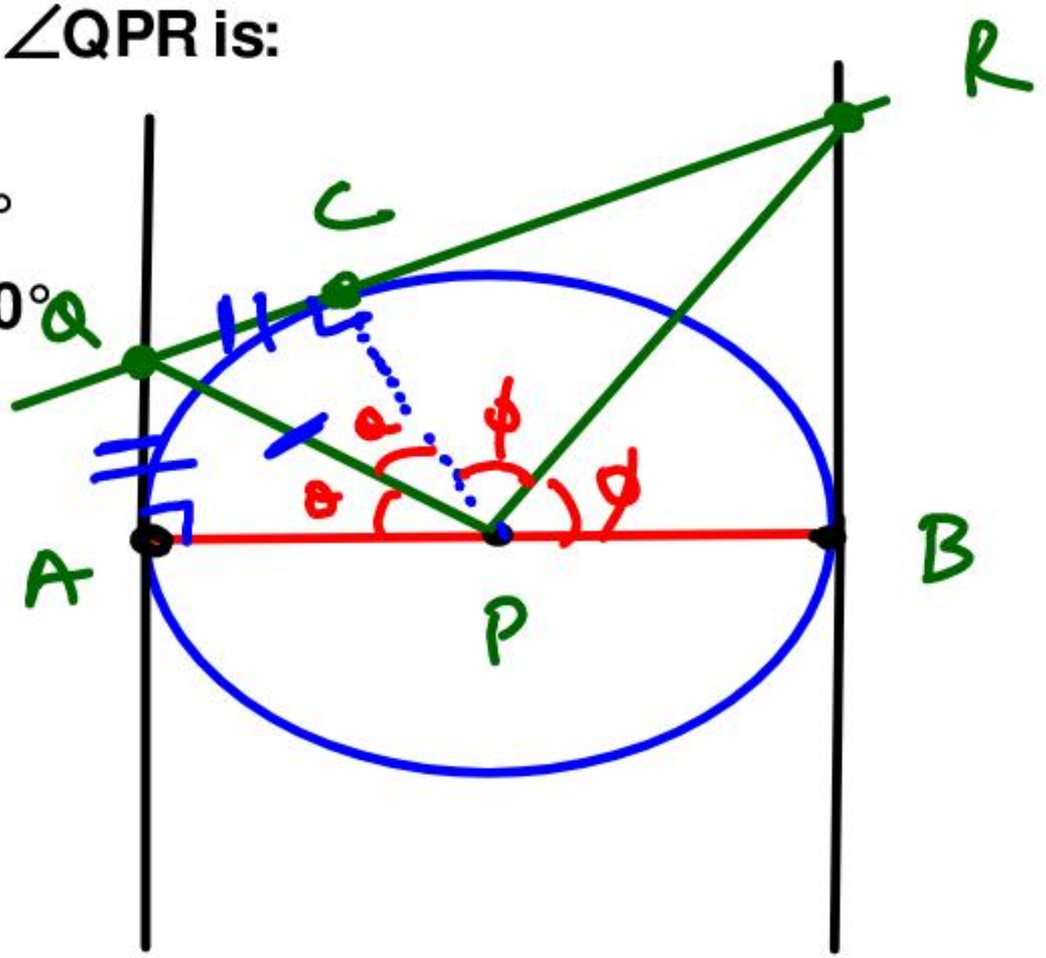
(d) 100°

Done

Ans. (d)

Q11. The tangents are drawn at the extremities of diameter AB of a circle with centre P. If a tangent to the circle at the point C intersects the other two tangents at Q and R then the measure of the ∠QPR is:

(a) 45°
(b) 60°
(c) 90°
(d) 180°



$\triangle QAP \cong \triangle QCP$

$2\theta + 2\phi = 180$

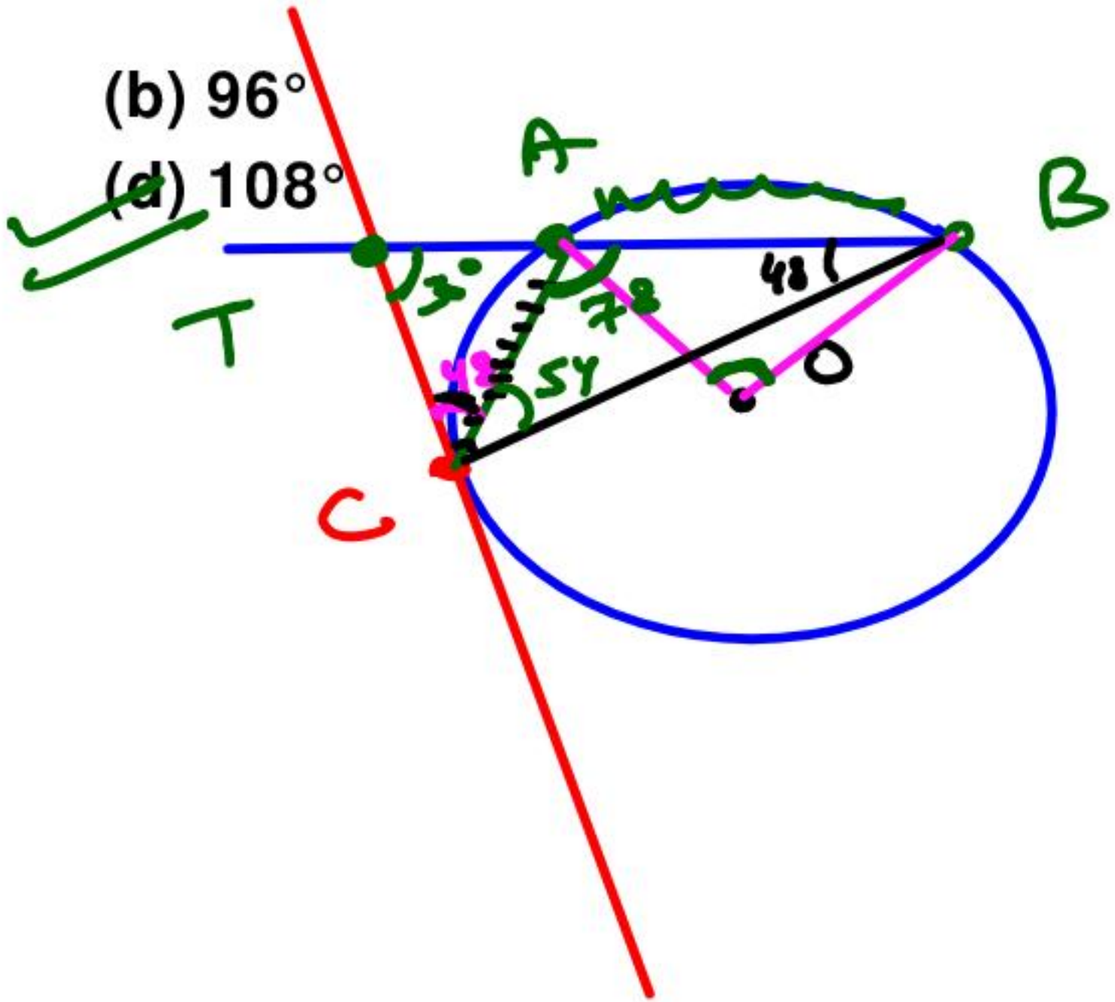
$\theta + \phi = 90^\circ$

$\angle QPR = 90^\circ$

Ans. (c)

Q12. A, B and C are three points on a circle with centre O. The tangent at C meets BA produced to T. If $\angle ATC = 30°$ and $\angle ACT = 48°$, then what is the value of $\angle AOB$?

(a) 78°
(b) 96°
(c) 102°
(d) 108°



Ans. (d)

Q13. ABCD is a cyclic quadrilateral AB and DC are produced to meet at P.

If $\angle ADC = 70°$ and $\angle DAB = 60°$, then the $\angle PBC + \angle PCB$ is:

(a) 130°

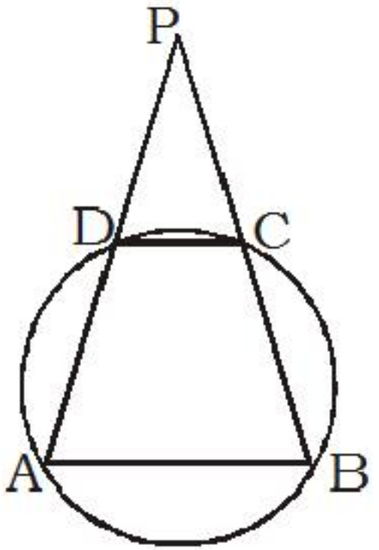
(b) 150°

(c) 155°

(d) 180°

Ans. (a)

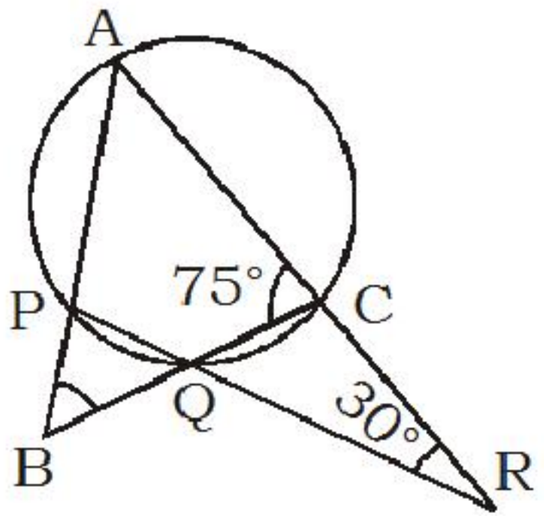
Q14. In the figure given above, if $\angle BAD = 60°$, $\angle ADC = 105°$, then what is $\angle DPC$ equal to?



(a) 40°
(b) 45°
(d) 60°
(c) 50°

Ans. (b)

Q15. In the given figure, what is ∠CBA?



(a) 30°
(b) 45°
(d) 50°
(c) 60°

Ans. (d)

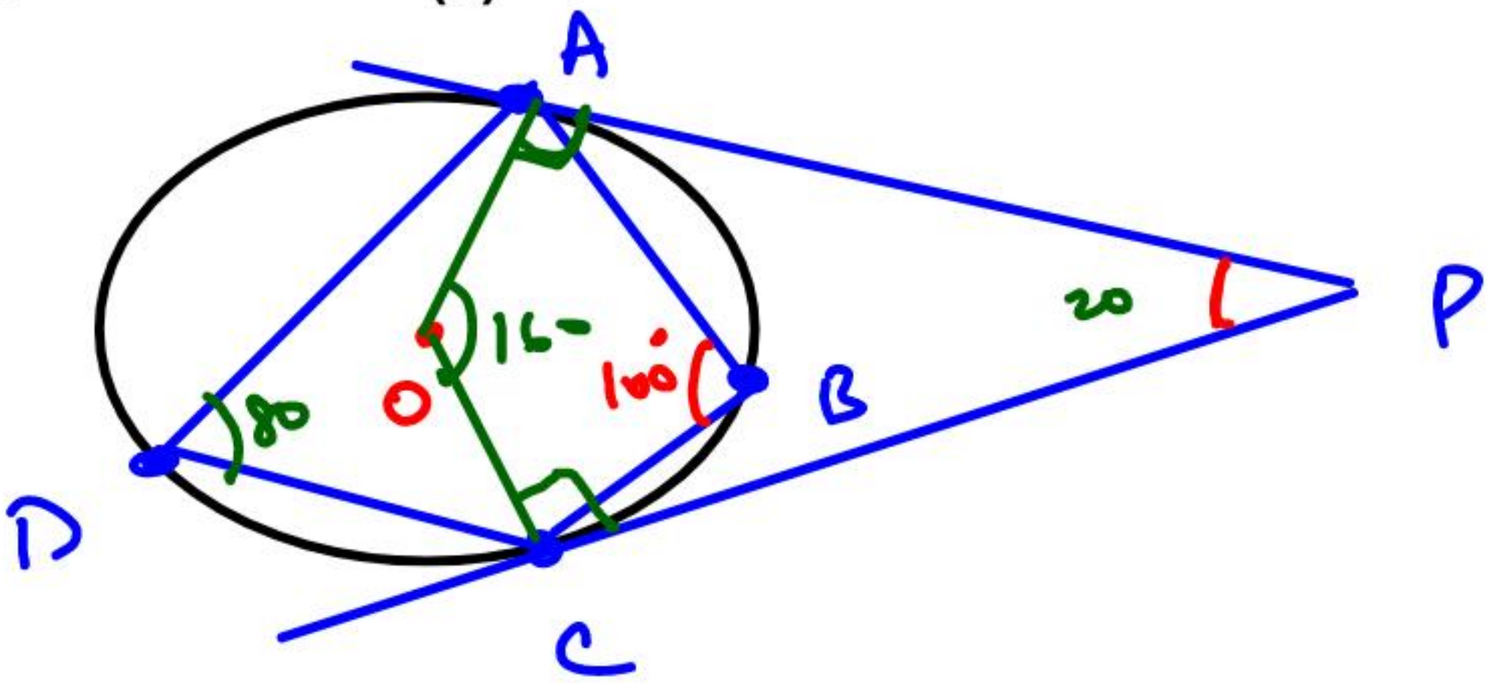
Q16. ABCD is a cyclic quadrilateral. The tangents at A and C intersect each other at P. If $\angle ABC = 100°$, then what is $\angle APC$ equal to?

(a) 10°

(b) 20°

(d) 30°

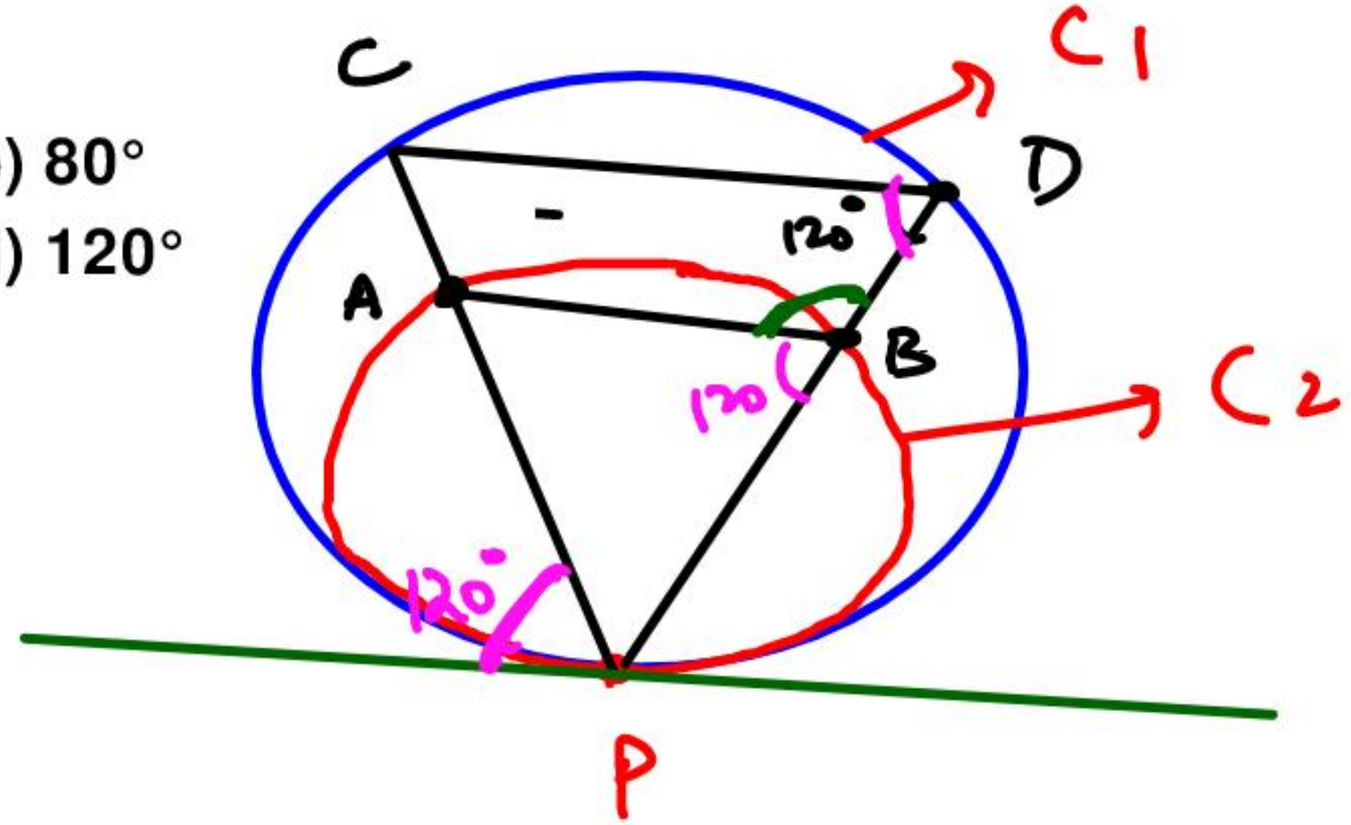
(c) 40°



Ans. (b)

Q17. Two circles C_1 and C_2 touch each other internally at P. Two lines PCA and PDB meet the circles C_1, in C, D and C_2 in A, B respectively. If $\angle BDC = 120°$, the value of $\angle ABD$ is equal to:

(a) 60°
(b) 80°
(c) 100°
(d) 120°

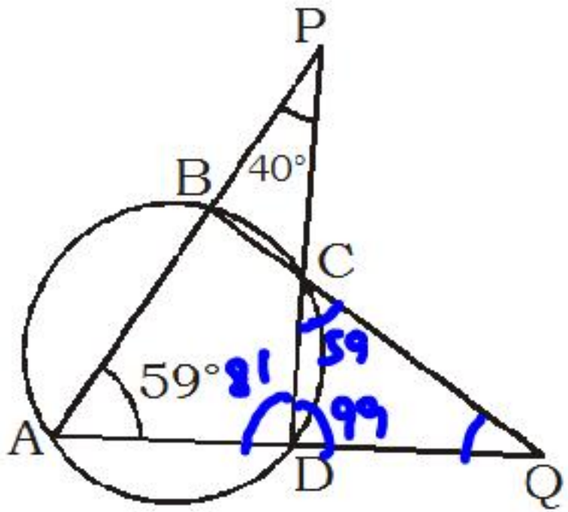


$\angle ABD = 60°$

Ans. (a)

Q18. In the given figure, if ∠PAQ = 59°, ∠APD = 40°, then what is ∠AQB?

(a) 19°
(b) 20°
(c) 22°
(d) 27°



99 + 59 + ∠AQB = 180

∠AQB = 22

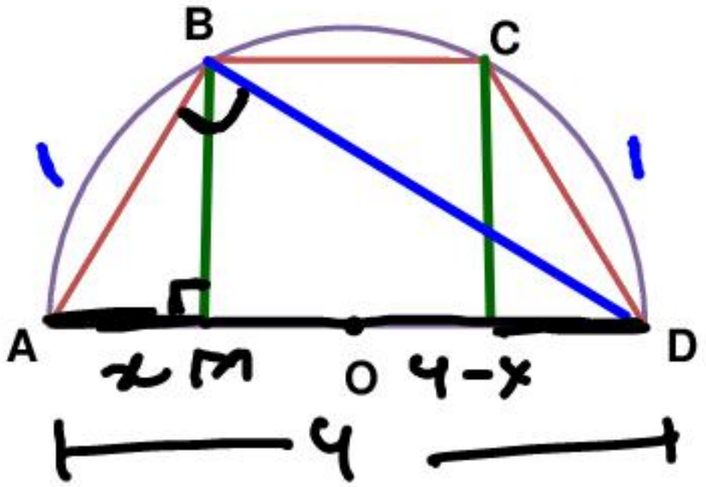
Ans. (c)

Q19. If AD || BC, AB = CD = 1 cm and AD = 4 cm

Find BC. (O is centre of semicircle)

3 1/2 cm

Ans



$BD^2 + 1^2 = 4^2$

$BD^2 = 15$

$BM^2 = 1^2 - x^2$

$(MO)^2 = (4-x)^2$

$1 - x^2 + 16 + x^2 - 8x = 15$

$x = 1/4$

* $BD^2 = 4 \cdot BC + 1$

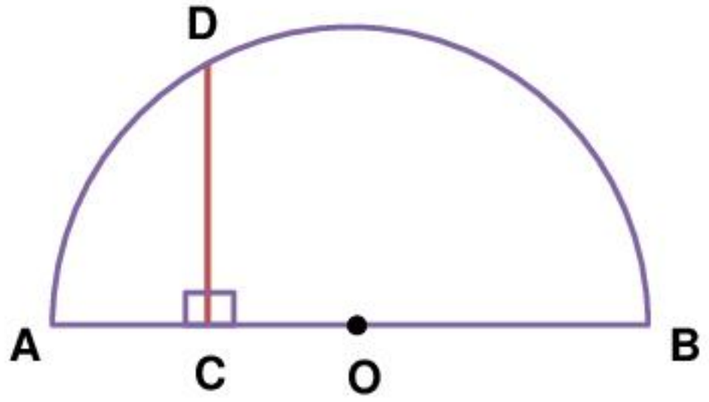
$14 = 4BC$ $\quad BC = 3\frac{1}{2}$ cm

Ans. 3.5 cm

Q20. If AC = 3 cm, CD = 9 cm

(O is centre of semicircle)

Find area of semi-circle.



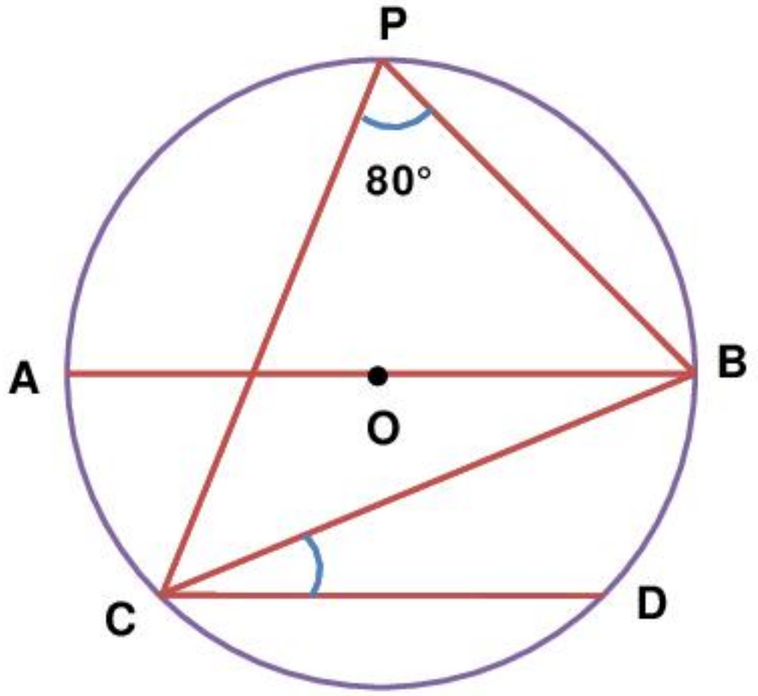
Ans. $\frac{225\pi}{2}$

Q21. If AB | | CD

$\angle CPB = 80°$

(O is centre of circle)

Find $\angle BCD$.

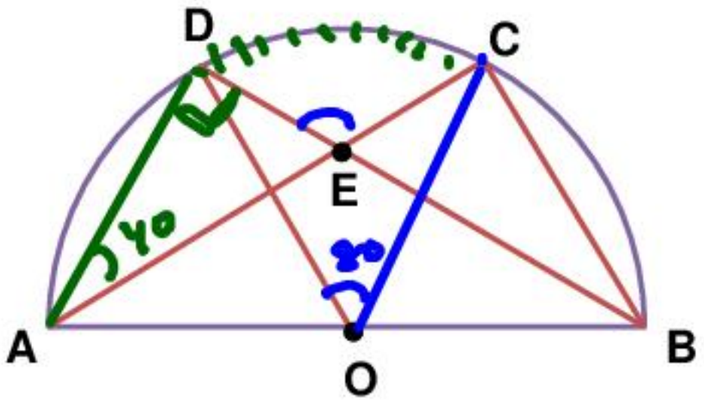


Ans. 10°

Q22. AB is diameter

$\angle DOC = 80°$ (O is centre of circle)

Find $\angle DEC$.

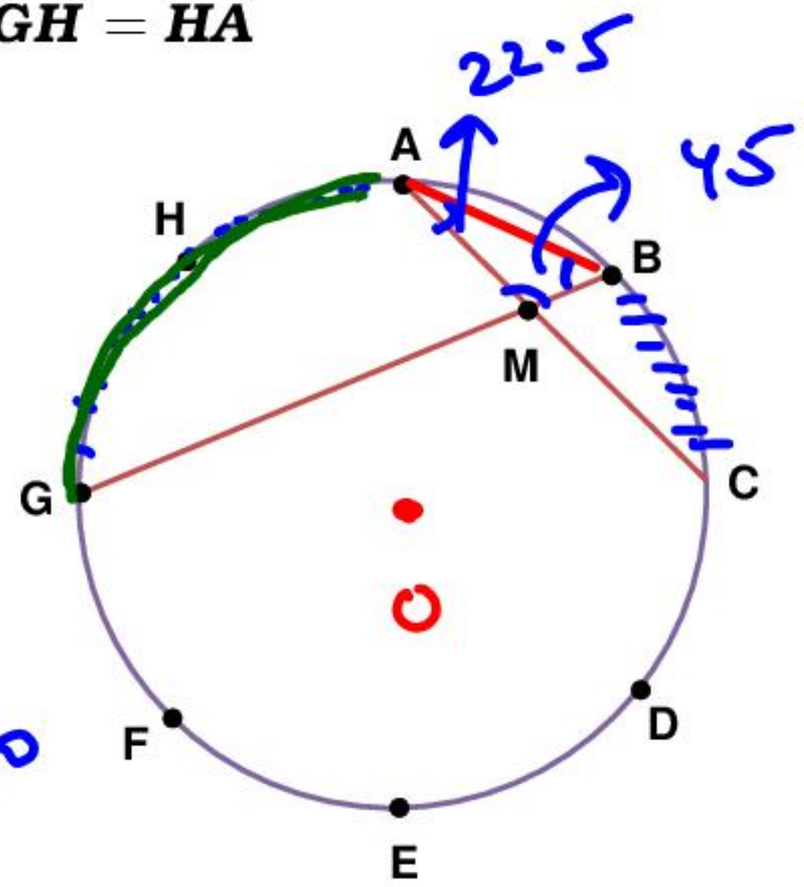


$\angle DEC = 130$

Ans. 130°

Q23. *If* $\overset{\frown}{AB} = \overset{\frown}{BC} = \overset{\frown}{CD} = \overset{\frown}{DE} = \overset{\frown}{EF} = \overset{\frown}{FG} = \overset{\frown}{GH} = \overset{\frown}{HA}$

Find $\angle AMB$.



$\frac{360^\circ}{8} = 45^\circ$

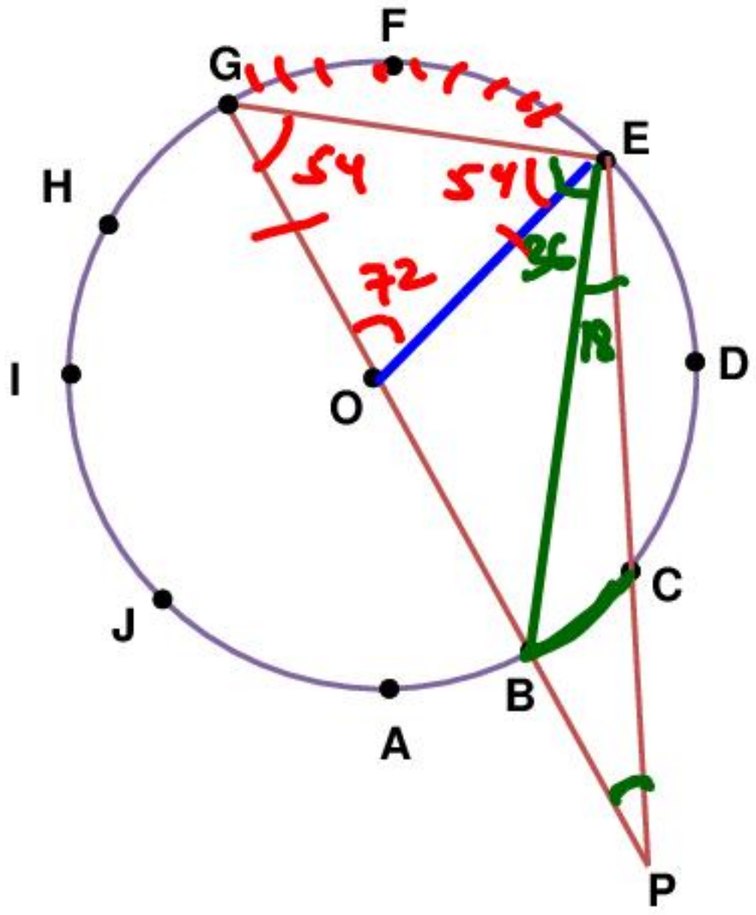
$67.5 + \angle AMB = 180$

$\angle AMB = 112.5^\circ$

Ans. 112.5°

Q24. *If* $\widehat{AB} = \widehat{BC} = \widehat{CD} = \widehat{DE} = \widehat{EF} = \widehat{FG} = \widehat{GH} = \widehat{HI} = \widehat{IJ} = \widehat{JA}$

Find $\angle EPG$.



$$\frac{360}{10} = 36^\circ$$

$$54 + 108 + \angle EPG = 180$$

$$\angle EPG = 18^\circ$$

Ans. 18°